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10/766,842	01/30/2004	Rabih Abou-Chakra	Q79655	3849
72875	7590	02/19/2010	EXAMINER	
SUGHRUE MION, PLLC 2100 Pennsylvania Avenue, N.W. Washington, DC 20037			BARON, HENRY	
			ART UNIT	PAPER NUMBER
			2462	
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			02/19/2010	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### Office Action Summary

**Application No.**

10/766,842

**Applicant(s)**

ABOU-CHAKRA ET AL.

**Examiner**

HENRY BARON

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 December 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13, 15 and 16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13, 15-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/GS/US)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### ***Detailed Action***

## **AUDIO AND VIDEO DATA PROCESSING DEVICE FOR MULTIMEDIA COMMUNICATION VIA A LOCAL NETWORK SET UP WITHIN AN ASYNCHRONOUS NETWORK**

### ***Response to Arguments/Remarks***

1. Claims 1 – 13 and 15 – 16 are pending in the application. Claim 16 is new.
2. Applicant arguments of 12/11/2009 have been fully considered but are not persuasive.
3. Applicant submits that there is no teaching or suggestion in the cited references that "the connection means synchronizes audio and video data according to a delay", as recited in independent claim 1. Applicant argues that Danneels does not synchronize the data packets based on a delay and further, Miao does not teach "the connection means synchronizes audio and video data according to a delay", as claimed. Instead, Applicant argues, Miao teaches that a conferencing server may determine a delay parameter for one or more streams of data and may attempt to synchronize the streams using the delay parameter, and may introduce a predetermined amount of delay into one or more of the streams to coincide with the delay of the other streams, but Miao does not teach or suggest that an audio stream and a video stream are synchronized according to a delay as claimed.
4. Examiner replies that per Applicant's arguments, Miao teaches that a conferencing server may determine a delay parameter for one or more streams of data which, using the broadest reasonable interpretation consistent with the specification can be data streams of audio and video, as both are inherently streams of data.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

a. A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1 – 7, 10 and 15 – 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danneels et al (U.S. Patent 5663951), hereafter Danneels, in view of Miao (U.S. Patent 7280650).

7. In consideration of claim 1, Danneels teaches of an audio and video data processing device for multimedia communication across an asynchronous network. (Fig 1; Figure Element (FE) 100, FE 110) between a first pair of audio communication terminal (FE 104 and 108) and video communication terminal (FE 102 and 106) and a like second pair (FE 100; Conferencing System B) where the terminals are LAN type (4: [0050+]) with connection means for setting up video and audio link of the two pairs (Figure 1; read analog video and audio, Conferencing System A and B) and video and audio links between the two pairs (FE 110 and 4: [0050-0063] Each conferencing system 100 receives, digitizes, and compresses the analog video signals generated by camera 102 and the analog audio signals generated by microphone 104. The compressed digital video and audio signals are transmitted to the other conferencing system via network 110, where they are decompressed and converted for play on monitor 106 and speaker 108, respectively. In addition, each conferencing system 100 may generate and transmit data signals to the other conferencing system 100 for play on monitor 106. The video and data signals are displayed in different windows on monitor 106. Each conferencing system 100 may also display the locally generated video signals in a separate window). The nature of audio and video signals are typically asynchronous, i.e. not synchronous as demonstrated in speech and images, thus the audio and video terminals are asynchronous and wherein the connection means synchronizes audio and video data

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according to a delay. (2:[0014] read [a] first subset of the data packets i.e. audio packets, is transmitted from the local node to a remote node, and then a subsequent subset of the data packets i.e. video packets, is transmitted from the local node to the remote node after a delay to avoid overloading the remote node with data packets )

8. However Danneels does not explicitly teach of an asynchronous network with random transmission times.

9. By contrast, Ishibashi teaches of a digital network to support multimedia communications that preserves the temporal relation among media stream (Section 1, paragraph 1.). Further, Ishibashi teaches random transmission times where he contrasts his paper to previous work in the field citing that “.. the network delay bounds are not always known.” (Section 1, paragraph 4.).

10. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify the teaching of Danneels with the random transmission times teachings of Ishibashi to form a network of asynchronous audio and video media streams with random transmission times. This would be advantageous since a network synchronization mechanism based on media streams with random transmission times are more realistic in modeling the way packets (or media units) are transported across networks.

11. Danneels and Ishibashi do not disclose where the connection means synchronizes audio and video data according to a delay.

12. Miao teaches where the connection means synchronizes audio and video data according to a delay. (4: [0035] read ..... In one embodiment of the invention, delay management module DMM 210 may operate to synchronize varying multimedia streams of information into a multimedia conferencing session . Multimedia conferencing sessions may be sensitive to delay, particularly for voice communications i.e. connection means synchronizes audio and video data according to a delay. Some members of a multimedia conferencing session may be connecting to the session via different networks,

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such as the traditional PSTN, a packet network, a wireless network, and so forth. Each network may introduce varying amounts of delay into the conferencing session due to various factors, such as the type of voice coder/decoder (codec) used by a device in the network, or the amount of jitter experienced by a network. AND Figure 3 element 306 'delay at least one of the streams according to the delay parameter.)

13. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify the teaching of Danneels with the random transmission times teachings of Ishibashi and the delay management teachings of Miao to form a network of asynchronous audio and video media streams with random transmission times. This would be advantageous since a network synchronization mechanism based on media streams with random transmission times are more realistic in modeling the way packets (or media units) are transported across networks.

14. In regards to claim 16, Danneels modified teaches the device according to claim 1, wherein the video data is transmitted from one of the first video communication terminal and the second video communication terminal to a receiving terminal one of the first video communication terminal and the second video communication terminal without delay, and the audio data is delayed by a predetermined time before being transmitted to a receiving audio communication terminal as the delays between the video and audio streams are relative.

15. With regards to claim 2, Danneels does not teach the device according to claim 1 with first dating means arranged to attach a transmit time mark and an identifier to audio and video data; coming from the first audio and video communication terminal before their transmission to the second pair via the said local network and to attach a receive time mark to the audio and video data coming from the second pair and containing an identifier and a transmit time mark, and their own processing means to determine a time difference representing the transmission time difference between the received audio and video data and presenting the same identifier from their respective transmit and receive time marks to delay by a value representing the time difference the transmission of the received audio data at the first audio

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communication terminal in relation to the transmission of the received video data at the first video communication terminal. Thus, Danneels does not teach connection means synchronizes audio and video data according to a delay.

16. Ishibashi teaches of a device with first dating means that attaches a transmit time mark and an identifier to audio and video (A/V) data before their transmission to the second like A/V terminal pair. (Section 2; Media Synchronization model; read data as media unit; transmit time mark as timestamp; audio and video data as M media streams I – M, Figure 1) across the local network (Figure 1; read high speed network) and attach a receive time mark to the audio and video data from the second pair containing an identifier and a transmit time mark. (Section 2; Media Synchronization model; Figure 1 read destination media stream.). Ishibashi also teaches processing means to determine a time difference representing the transmission time difference between the received audio and video data (Figure 2; read 'i' as audio or video stream 'i'; sigma as difference between timestamps) and presenting the same identifier, i.e. media stream, from their respective transmit and receive time marks i.e. timestamps, and delay by a value representing the transmission time difference of the received audio data at the first audio communication terminal in relation to the transmission of the received video data at the video communication terminal. (Figure 2; also see discussion on page 1011 regarding inter-stream synchronization and master/slave streams; Section 1 Introduction, read delay as adjust output timing).

17. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify the teaching of Danneels with the synchronization teachings of Ishibashi.

18. This modification would be advantageous as it would permit the video and audio packets received across an asynchronous network to be synchronized and presented to the end user in concert.

19. With regards to claims 3 – 4, and 15, Danneels does not of a device with processing means arranged to determine a time difference (ET) representing the transmission time difference and a coding

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and decoding time difference between the received audio and video data, presenting the same identifier and synchronization of audio and video occurs once at the connection means and once at the pair.

20. Ishibashi teaches of media stream coding and decoding performed in the application layer (Figure 1) that are received at synchronization service access point. Further, Ishibashi teaches of the concept of inter-stream synchronization between master/slave streams. (Section 4.2, page 1015) i.e. synchronization of audio and video occurs once at the connection means and once at the pair. Because less processing is required for audio data, the 'faster' audio stream represents the master stream, the video the slave stream i.e. identifier. (page 1011). Danneels teaches that audio (6: [0024]) and video coding and decoding as part of the process to generate multimedia streams.

21. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify the teaching of Danneels with the synchronization teachings of Ishibashi.

22. This modification would be advantageous as it would further facilitate the video and audio packets received across an asynchronous network to be synchronized and presented to the end user in concert.

23. With regards to claims 5 and 7, Danneels teaches of audio and video links that are of a "deterministic" type in Figure 1; i.e. links between FE 102,106 and FE100 video; links between FE 104,108 and FE 100.

24. In reference to claim 6, Danneels does not teach processing means arranged so as to determine the time difference from the transmit and receive time markings of the received audio and video data, and from values representing their respective transmission times between the connection means and the first audio and video communication terminals for which they are intended.

25. Ishibashi teaches of media stream coding and decoding performed in the application layer (Figure 1) that are received at a common synchronization service access point (SSAP). Danneels teaches of audio and video links that are of a "deterministic" type in Figure 1 whose delays can be sent to the SSAP.



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Further, Ishibashi teaches that time difference can be derived from time markings i.e. timestamps between tightly coupled media-streams such as audio and video (Section 4.2.1 and Figure 4). Further, Ishibashi teaches of the concept of inter-stream synchronization between master/slave streams. Because of relative shorter period required to process audio data, the audio stream represents the master stream, the video the slave stream (Page 1011).

26. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify the teaching of Danneels with the synchronization teachings of Ishibashi.

27. This modification would be advantageous as it would further facilitate the video and audio packets received across an asynchronous network to be synchronized and presented to the end user in concert.

28. With regard to claim 10, Danneel's Conference System (Figure 1, FE 100) represents a connection means that provides a proxy type function for audio and video data to the network LAN.

29. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danneels et al (U.S. Patent 5663951), hereafter Danneels in view of Ishibashi et al, A Synchronization Mechanism for Continuous Media in Multimedia Communication, INFOCOM '95. Fourteenth Annual Joint Conference of the IEEE Computer and Communications Societies; Bringing Information to People. Proceedings. IEEE 2-6 April 1995 Page(s): 1010 - 1019 vol.3 hereafter Ishibashi, in view of Miao (U.S. Patent 7280650 and in further view of Little et al, Network and Operating Systems Support for Digital Audio and Video: Proceedings, 5th International Workshop on Network and Operating Systems Support for Digital Audio and Video, Springer 1995, hereafter Little.

30. With respect to claims 8 - 9, Danneels and Ishibashi teach the limitations of claim 2 but are silent in teaching assignment of priority levels to audio and video data to be transmitted or assigning a lower priority to video data relative to audio data.

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31. By contrast, Little teaches in the traffic characteristics and flow control that video streams have lower priority than higher priority audio, i.e. read jitter as characteristic of audio streams. (Page 168 - 169; Traffic Characteristics and Flow Control section).

32. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify inter-stream synchronization between audio and teachings of Danneels and Ishibashi with the audio visual (A/V) priority teachings of Little.

33. By transporting audio streams across a network with a higher priority relative to its companion video stream, the random arrival time of A/V packets at the destination port is mitigated and the distribution of both packet classes are more tightly bounded. This is ultimately advantageous in improving the synchronization of the two data streams.

34. Claims 11 - 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danneels et al (U.S. Patent 5663951), hereafter Danneels in view of Ishibashi et al, A Synchronization Mechanism for Continuous Media in Multimedia Communication, INFOCOM '95. Fourteenth Annual Joint Conference of the IEEE Computer and Communications Societies. Bringing Information to People. Proceedings. IEEE 2-6 April 1995 Page(s): 1010 - 1019 vol.3 hereafter Ishibashi, in view of Miao (U.S. Patent 7280650 and in further view of Keshab et al, Digital Signal Processing for Multimedia Systems, CRC Press 1999 pg 245 and 274, hereafter Keshab.

35. With regards to claim 11 - 13 Danneels and Ishibashi teach the limitations of claim 1 but are silent in teaching of processing device for an audio, video, or communication unit.

36. Keshab teaches, circa 1999, of recent developments of microprocessors and DSP chips that provide audio and video processing capabilities (page 245, 2<sup>nd</sup> paragraph). Further, Keshab teaches that developments of microprocessors can be also be used in wireless communications (page 274, 3<sup>rd</sup> paragraph).

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37. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify the inter-stream synchronization between audio and teachings of Danneels and Ishibashi incorporating a digital processing device in the video, audio, and communication unit.

38. Processing audio and video signals with a DSP in the video and audio communication unit improves the fidelity of A/V data and digital processing of communication signals efficiently utilizes bandwidth.

### ***FINAL ACTION***

39. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

40. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

### ***Conclusion***

41. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HENRY BARON whose telephone number is (571)270-1748. The examiner can normally be reached on 7:30 AM to 5:00 PM E.S.T. Monday to Friday.

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42. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

43. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/H. B./  
Examiner, Art Unit 2462

**HB**

/Donald L Mills/  
Primary Examiner, Art Unit 2462